

High-Resolution Detector for At-Wavelength Metrology of X-Ray Optics, Phase II

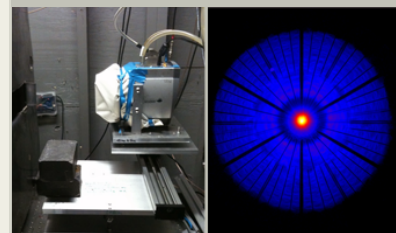
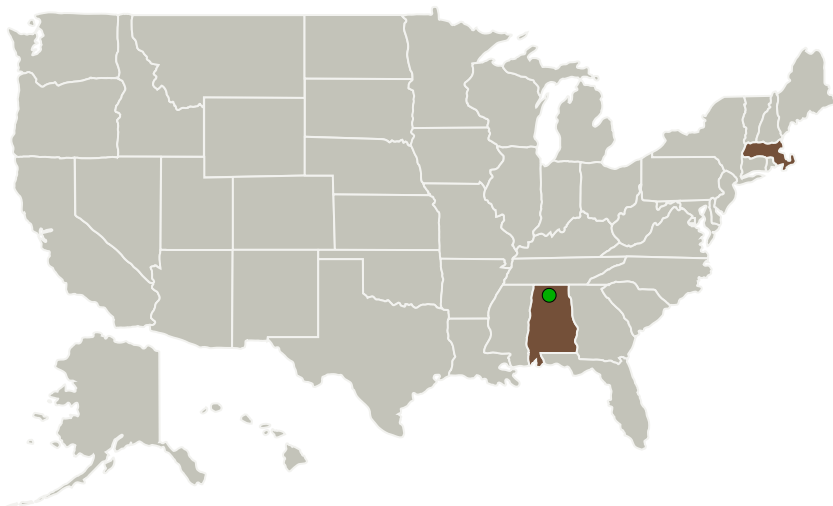
Completed Technology Project (2012 - 2014)



Project Introduction

Since the launch of the first X-ray focusing telescope in 1963, the development of grazing incidence X-ray optics has been crucial to the development of the field of X-ray astronomy. The recent Decadal Survey also highlights the important contribution that X-ray astronomy can make in addressing some of the most pressing scientific questions about black holes, cosmology and the ebb and flow of energy and matter in the evolving universe, and recognizes the research needed to mature the key enabling technology of X-ray optics. The proposed development directly addresses this need by providing a unique detector designed specifically to support the development of the next generation of X-ray telescopes, which will allow researchers and engineers to characterize such X-ray telescopes with high accuracy, and thereby optimize their performance and best utilize their gathered data. By the end of the Phase II program we will have developed a fully calibrated detector ready for use at various facilities, including NASA's Marshall Space Flight Center (MSFC) and other NASA-funded research centers such as the Harvard-Smithsonian Center for Astrophysics and Columbia University. The estimated technology readiness levels (TRLs) at the beginning and end of the Phase II contract are 5 and 6, respectively.

Primary U.S. Work Locations and Key Partners



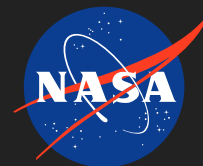
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Organizations Performing Work	Role	Type	Location
Radiation Monitoring Devices, Inc.	Lead Organization	Industry	Watertown, Massachusetts
● Marshall Space Flight Center(MSFC)	Supporting Organization	NASA Center	Huntsville, Alabama

Primary U.S. Work Locations	
Alabama	Massachusetts

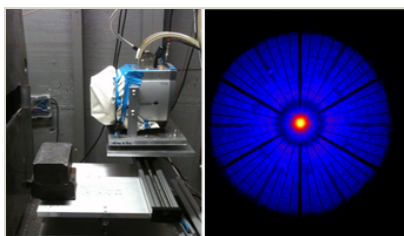
Project Transitions

**April 2012:** Project Start**December 2014:** Closed out

Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/137394>)

Images



Project Image

High-Resolution Detector for At-Wavelength Metrology of X-Ray Optics

(<https://techport.nasa.gov/image/128232>)

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Organization:

Radiation Monitoring Devices, Inc.

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

Vivek Nagarkar

Co-Investigator:

Vivek Nagarkar

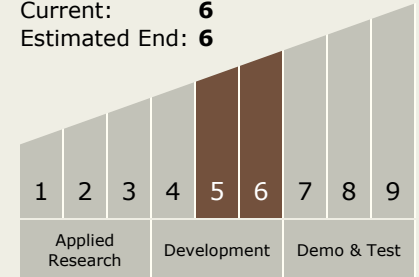
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Technology Maturity (TRL)

Start: **5**
Current: **6**
Estimated End: **6**



Technology Areas

Primary:

- TX08 Sensors and Instruments
 - └ TX08.1 Remote Sensing Instruments/Sensors
 - └ TX08.1.1 Detectors and Focal Planes

Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System